EDISON ELECTRIC INSTITUTE

Multi-emission Proposals

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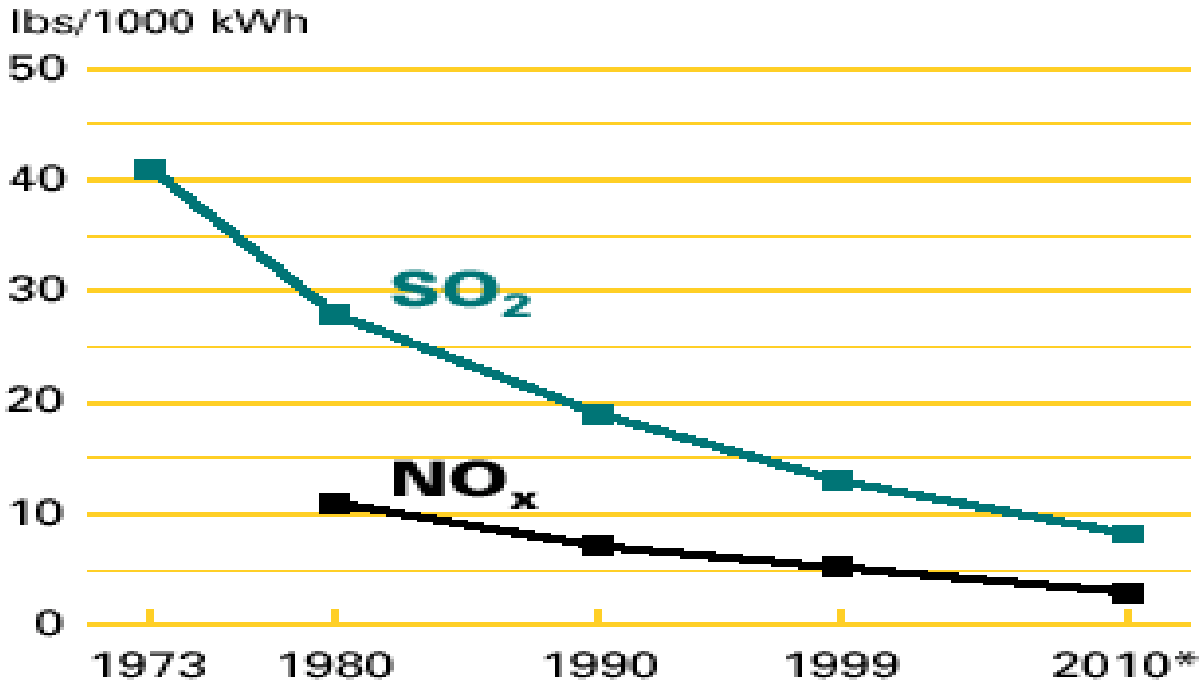
Electricity from Coal Is Essential & Increasingly Clean

Coal-Based Electricity Emissions Rates Drop



* 2010 emissions projected, based on 100 percent of SO_2 and 90 percent of NO_x coming from coal-based generation.

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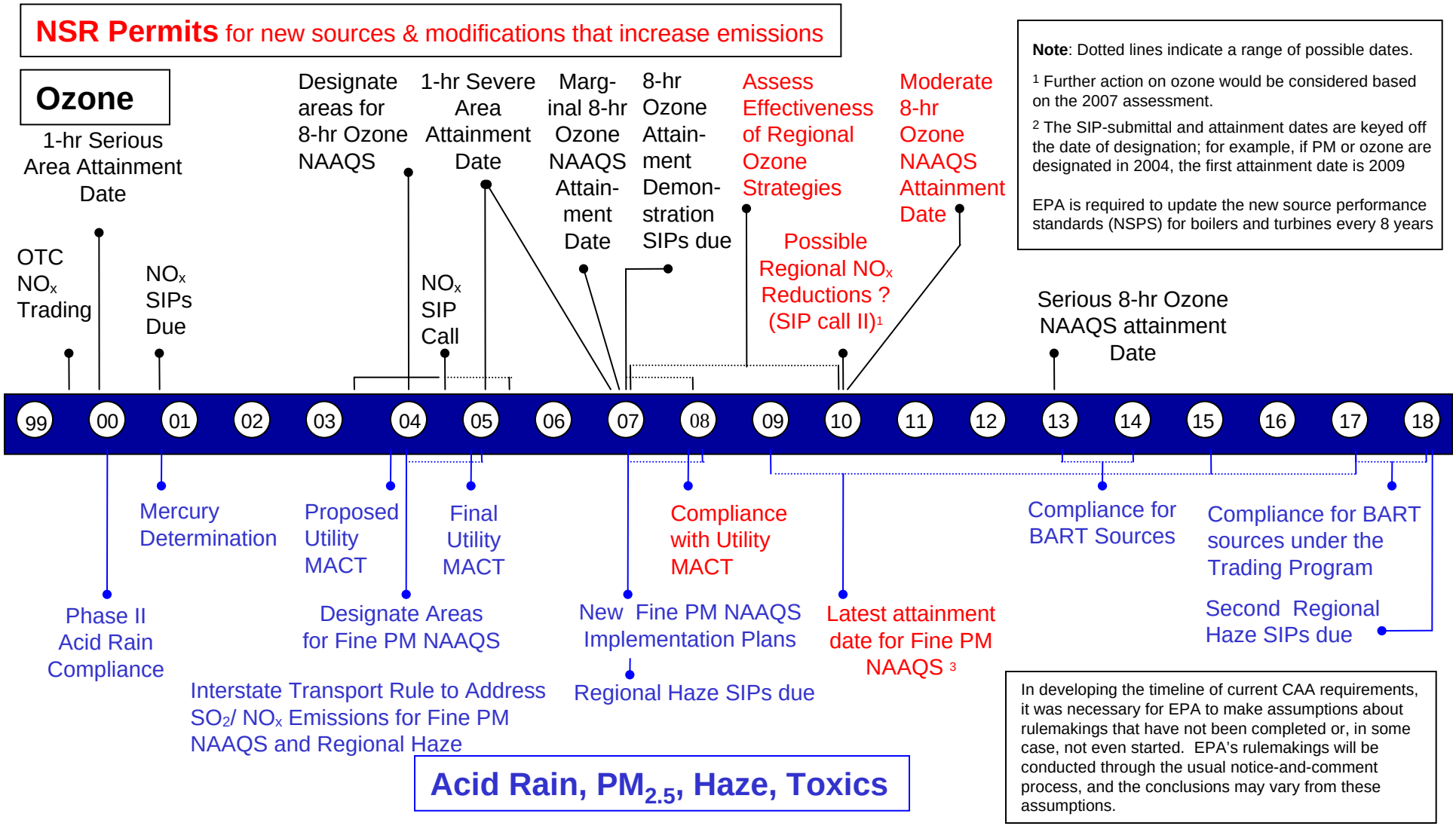
The Clean Air Act's Complex Set of Requirements

Further progress under the Clean Air Act is complex, burdensome and uncertain



Note: Dotted lines indicate a range of possible dates.

[1] Further action on ozone would be considered based on the 2007 assessment.

[2] The SIP-submittal and attainment dates are keyed off the date of designation; for example, if PM or ozone are designated in 2004, the first attainment date is 2009

EPA is required to update the new source performance standards (NSPS) for boilers and turbines every 8 years

In developing the timeline of current CAA requirements, it was necessary for EPA to make assumptions about rulemakings that have not been completed or, in some case, not even started. EPA's rulemakings will be conducted through the usual notice-and-comment process, and the conclusions may vary from these assumptions.

Multi-Emission Legislation – Possible Futures

- Environmental group alternative - “maxed out” emissions reductions, more lawsuits and limits on flexibility.
- Opposite extreme - poor economy, international strife, energy concerns and more lawsuits temper environmental regulations.
- Both of these alternatives are highly unlikely.
- In the middle are EPA’s regulatory alternative and the President’s Clear Skies Act.

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The Current Path Provides Little Certainty for Electric Providers, Shareholders or the Environment

- Increases complexity of multi-layered CAA.
- Increases difficulty of planning.
- Can lead to uneconomic decisions for companies.
- Causes higher prices for consumers.
- Increases shifts in fuels used (more natural gas).
- Can even undermine reliable electric generation.

Power Generators Requirements Under a New Multi-emission" Approach

- Reasonable targets and timing.
- Certainty (e.g., resolving NSR and other problems).
- Flexibility.

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The Right Multi-Emission Bill Benefits Electricity Producers, Consumers and the Environment

- Certainty due to simplified, streamlined Clean Air Act.
- Flexibility through market-based programs (emissions trading).
- Cost-effectiveness due to certainty and flexibility.
- Adequate time to install technology due to reasonable targets and timetables, preserving coal generation.

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The Right Multi-Emission Bill Benefits Electricity Producers, Consumers and the Environment

- Minimal impact on natural gas prices due to less shifting to natural gas.
- Continued reliable, low cost power.
- Low cost impact for consumers and lesser impact on shareholders.
- Major emission reductions and substantial reduction in number of non-attainment areas and reduced action needed in remaining non-attainment areas.

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Administration vs. Carper Bill – Emissions Caps and Timing

	Administration bill	Carper bill
Sulfur Dioxide	4.5 million tons – 2010 3.0 million tons - 2018	4.5 million tons – 2008 3.5 million tons – 2012 2.25 million tons - 2015
Nitrogen Oxides	2.1 million tons – 2008 1.7 million tons - 2018	1.87 million tons – 2008 1.7 million tons - 2012
Mercury	26 tons – 2010 15 tons - 2018	24 tons – 2008 5 to 16 tons - 2012
Carbon Dioxide	No cap	~ 2.6 billion tons – 2008 ~ 2.3 billion tons – 2012

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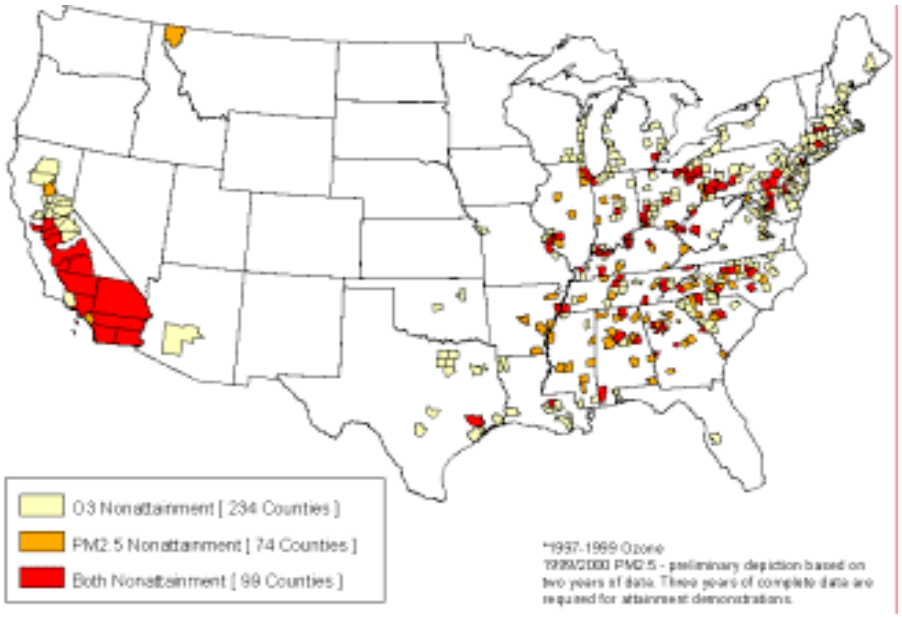
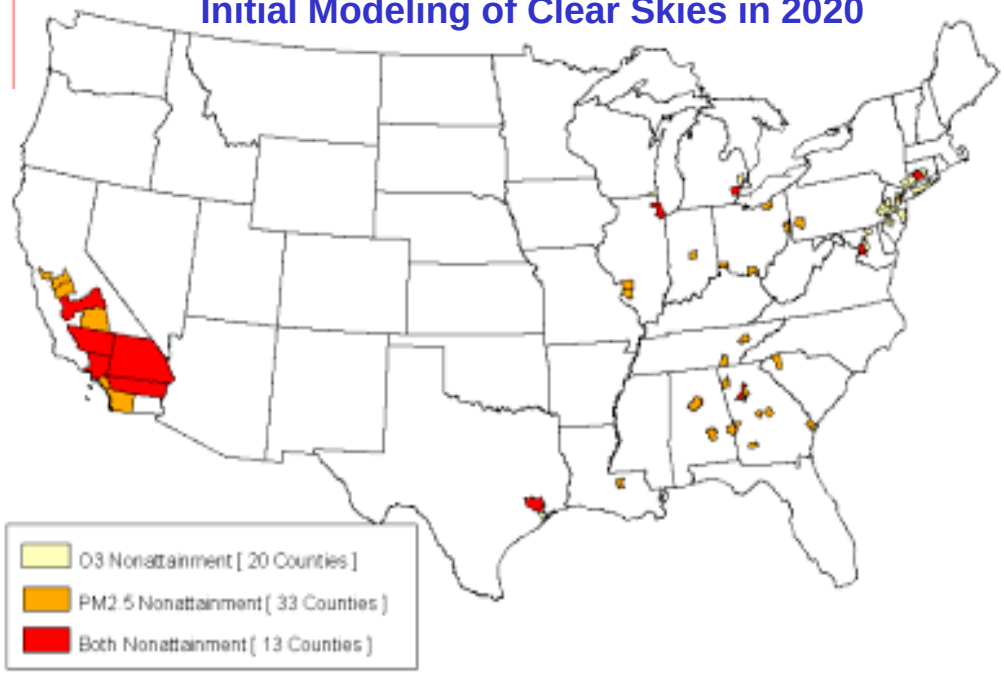
EPA's Projected Attainment of $PM_{2.5}$ and 8-hour Ozone Standards - Current and Under Clear Skies in 2020



Initial Modeling of Clear Skies in 2020



EEI Reaction to Clear Skies

- The scope and framework of the Clear Skies Initiative are on target.
- The targets and timetables would be extremely difficult for some companies to meet.
- To be most effective, the Clear Skies Initiative must:
  - ✓ include New Source Review reform;
  - ✓ facilitate emissions trading;
  - ✓ provide credit for early reductions;
  - ✓ eliminate the allowance auction; and
  - ✓ set the Phase 1 mercury cap to not exceed "co-benefits" from SO_2 and NO_x controls (the Administration's stated objective for Phase 1 reductions).

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Clear Skies Benefits

- Cleaner: Cuts sulfur dioxide, nitrogen oxides, and mercury emissions by 70 percent from current levels.
- Sooner**:** Achieves these additional emissions reductions faster than under existing Clean Air Act programs.
- Cheaper**:** Reduces costs and provides greater business certainty by eliminating multiple, overlapping regulations.
- Certain: Continuous emissions monitoring and large penalties for non-compliance.

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S. 3135 (Carper Bill) – Some Key Issues

- Carbon dioxide emissions reductions of about 20% in 2012 and 28% in 2020.
- Early, tight caps for SO_2, NO_x and mercury.
- Trading of mercury allowances would be limited by forcing each unit to either reduce emissions by 50-70% or to meet a specific emissions rate.

Modeling for EEI by Charles River Associates and E&MC Group

- Costs incremental to a reference case of Title IV (acid rain) plus the NO_x SIP call (Eastern U.S. 2004 ozone program).
- Costs would be much less if the reference case included future regulations for mercury, fine particles, 8-hour ozone and regional haze. However, it is difficult to predict the regulatory future in order to quantify these costs.
- Assumptions include EIA Annual Energy Outlook 2003 natural gas reference case costs.

Clear Skies vs. Carper Bill

SCENARIO	NPV Cost (2004-2020, $1999)	Year 2010 Cost	Year 2015 Cost	Year 2020 Cost
Clear Skies	$32-37 billion, depending on SCR capital costs (~ $2/MWh)	$4.8-5.5 billion	$6.2-7.0 billion	$11.2-12.3 Billion (~$5-5.50/MWh)
Carper bill (modest carbon offsets)	$54-64 billion, depending on mercury cap (~ $3-4/MWh)	$7.3-8.7 billion	$10.4-12.1 billion	$13.9-16.3 Billion (~$6.50-8.15/MWh)

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Clear Skies vs. Carper Bill

SCENARIO	2020 Average Coal Unit Capacity Factor	2020 Coal Consumption (compared to predicted future)	2020 Gas Consumption (compared to predicted future)
Clear Skies	75-77% (vs. reference of 79-80%)	10-12% decline (little change from present usage)	13-14% increase
Carper bill (modest carbon offsets)	63-67%	22-27% decline	22-28% increase

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S. 366 (Jeffords Bill)

- Introduced in February 2003; essentially same as S.556.
- Extremely tight caps starting in 2009 for SO_2, NO_x and CO_2 and in 2008 for mercury.
- Major new provisions in bill passed by S. E&PW (S.556):
  - ✓ "Birthday" provision at age 40 starting in 2014.
  - ✓ Reduce non-Hg hazardous air pollutants by 2008.
  - ✓ Coal combustion products treated as hazardous waste.
  - ✓ Must purchase virtually all emissions allowances.
- No sections of Clean Air Act eliminated or modified to provide certainty.

Jeffords Bill (S.556) – Costs and Fuel Impacts

- EIA evaluated **S.556** in July 2001:
  - ✓ Earlier, less burdensome version of bill.
  - ✓ Costs for the period 2001-2020 of $140 billion.
  - ✓ Coal-based generation would be reduced about 40 percent and natural gas generation increased 60 percent.
- **S.556** voted out of E&PW in June 2002 has much greater impact:
  - ✓ The Congressional Budget Office in November 2002 estimated that S.556 could cost the power generation sector as much as $40 Billion in 2009 and $60 Billion in 2012.

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Sufficient Time is Needed for Reliable Electric Generation and Cost-effectiveness

- Retrofits of 100 GW or more of SCR, FGD, activated carbon/sorbent and probably fabric filters.
- Need to spread installations over time to ensure reliability (to avoid having too many units off-line concurrently).
- Need to avoid labor and materials shortages and bottlenecks.
- Permitting of landfills for FGD products can take years.
- Need to allow advanced mercury controls to be developed.
- Need to allow expenses to be spread over time to minimize issues re: securing financing.

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